

Amendments to the Drawings

The attached drawing sheet includes a change to Fig. 4. The sheet includes only Fig. 4, the original of which it replaces. Per the objection made in the Office Action, this figure has been revised to include a depiction of the grounding of pin 13.

Attachments: Replacement Sheet
Annotated Sheet Showing Changes

REMARKS/ARGUMENTS**1. Drawings**

As noted above, Fig. 4 has been revised to include a depiction of the grounding of pin 13, per the objection made in the Office Action.

2. Specification

In the specification, paragraph [0021] has been amended to reference the branched bus (18') depicted in Fig. 2, and paragraph [0026] has been amended to reference the pins (21) depicted in Fig. 3. No new matter has been introduced.

Also per the objections in the Office Action, paragraph [0046] has been amended to eliminate the duplicate word, "been."

3. Claim Objections

Claims 8, 10, 12-15, and 17-20 were objected to for informalities, and have been appropriately amended. These amendments do not narrow the scope of the claims in any way, as the words added are superfluous.

4. Claim Rejections - Indefiniteness

Claims 1, 10, and 11 were rejected as indefinite for lack of antecedent basis for the terms "the current," "the provision," and "the background level of current draw noise," respectively, and have been amended appropriately. It is submitted that these amendments do not narrow the scope of claims 1, 10, or 11 as they are not believed to alter the claimed subject matter as reasonably interpreted.

5. Claim Rejections - Prior Art

Claims 1-9 and 11-19 stand rejected as anticipated by U.S. Patent No. 6,584,907 to Boucher ("Boucher"); claims 10 and 20 stand rejected as obvious over Boucher in view of U.S. Patent No. 5,460,093 to Prinz et al. Independent claims 1, 11, and 16 have been amended to clarify their limitations that are not taught or suggested by Boucher. Specifically, claims 1, 11, and 16 have each been amended to add the following limitation:

wherein said [current] modulation[-based talkback]¹ includes energy differentials between states, and said energy differentials are supplied by power directly derived from said master device

By "power directly derived from said master device," it is meant that the power is not first temporarily stored onboard the slave device in a storage capacitor or the like. Thus, as claimed, the modulation effected by the slave device must be *passively*, rather than actively, effected in that the power supplying the energy differentials of the modulation must be directly derived from the master device. Examples of circuitry that effects modulation in such a fashion are provided in paragraph 33 of the present specification as including "modulating the voltage on a sense resistor, [employing] a current feedback loop on an op amp, or incorporating constant current sinks, e.g. current mirror." (Although such circuitry may require operating power in order to effect such modulation, the energy differentials of the modulation are not *derived from* that operating power).

¹ In response to the interpretation of "current modulation" and like claim terms implicitly set forth by the Examiner in the second paragraph of page 5 of the Office Action ("Communication signals, which are generated by modulating a voltage in order to produce a coded signal, are invariably identical to a coded signal generated by modulating a current, since current is directly proportional to voltage."), Applicant does not concur that current is always directly proportional to voltage, but admits that the term "current modulation" and like claim terms herein cover voltage modulation as well.

In contrast, Boucher discloses a system in which optional embodiments of the slave devices (initiators) do not include onboard *power supplies*, but do include onboard energy storage capacitors. One of ordinary skill in the art at the time of filing the present application would have understood the disclosure of Boucher to inherently teach that such onboard capacitors supply the power for the energy differentials of any talkback modulation (in the two-way communication embodiments) effected by slave devices, and that such power is not directly derived from the master device but is first stored onboard in a capacitor.

Further, regarding claims 7-10, 14, 15, and 18-20, each of those claims are limited to embodiments wherein the "system is an electronic blasting system and [the] slave device is an electronic detonator." Boucher certainly does not even inherently suggest such a limitation, is not analogous art to such subject matter, and cannot be properly combined with Jullian. Boucher itself expressly states to the contrary:

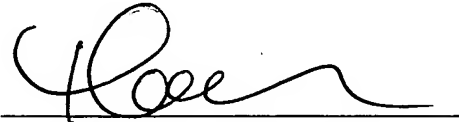
It will be evident in view of the discussion above that an ordnance firing system in accordance with **the present invention** that comprises intelligent initiators **differs from blasting-type initiation systems** because in a typical mining blast, the number and sequence of initiations is predetermined. The use of "intelligent initiators" that rely on sensors as described herein to determine whether or not it is appropriate to arm and/or to fire the associated effector provides a system in which an on-going assessment of the environment can determine which initiators function, even after the initial firing of the first reactive effectors. In blasting operations, the arming decision is made at a central control unit and once the blast has started, the system generally does not provide any way for it to vary or alter in a controlled, calculated manner the order or sequence in which detonators are fired.

Col. 13, lines 52-67 (emphasis added).

Favorable action on this application is thus respectfully requested in view of the foregoing amendments.

Respectfully submitted,

Dated: March 22, 2004

A handwritten signature in black ink, appearing to read 'T. Brindisi', written over a horizontal line.

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Attachments: Replacement & Annotated Drawing Sheets

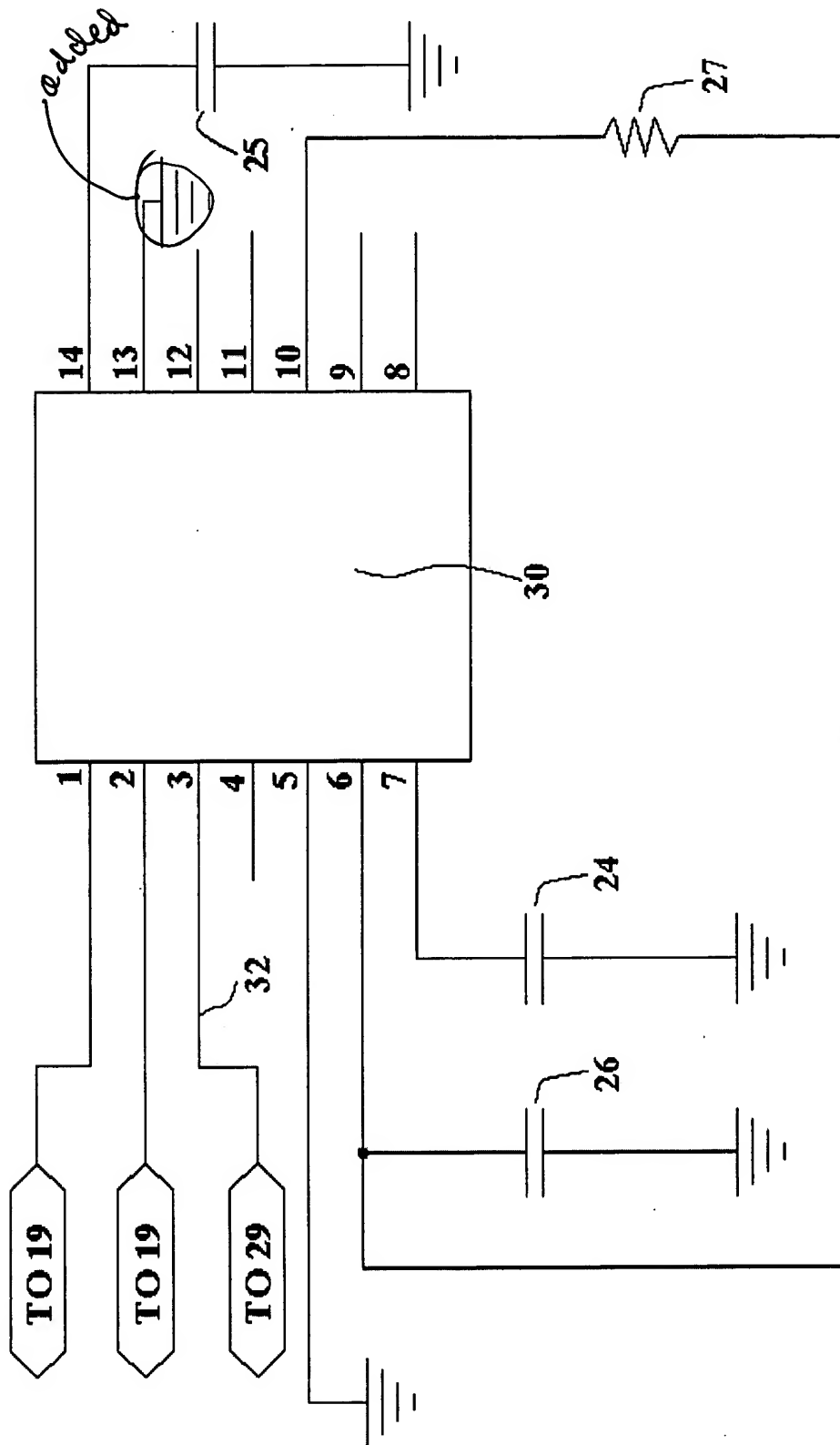


FIG. 4